ORDER NO. SD81041868C4

Service Manual

Stereo Frequency Equalizer

SH-8015

[PA], [PE]

Areas

* [PA] is available in far East PX.
* [PE] is available in European Military.

Please use this manual together with the service manual for Model No. SH-8015 [E, EG, EF, EH, EB, Ei, EK, XL, XA] Order No. SD81041867C8.

CHANGES

■ REPLACEMENT PARTS LIST

Note: Ⓚ -marked parts are used for black only.

Ref. No.	Change of Part No. SH-8015 (ORDER NO. SD81041867C8)	Change of Part No. SH-8015 [PA, PE]	Part Name & Description	Per Set (Pcs.)	Remarks
CABINET and CHASSIS PARTS					
1	SGWH8015XA SGWH8015KD Ⓚ	SGWH8015XA	Panel, Front Ass'y	1	
2	SGX7027–2 SGX7027–1 Ⓚ	SGX7027–2	Ornament, Right Side	1	
3	SGX7029–2 SGX7029–1 Ⓚ	SGX7029–2	Ornament, Left Side	1	
8	SKC750S SKC750B Ⓚ	SKC750S	Cabinet	1	
12	RJA45Z [EK] RJA52Z [X, XA] QFC1207MA [XL] SJA88 [Other Areas]	RJA52Z	AC Cord	1	RD
13	SHR131 [XL] SHR129 [EK] SHR127 [Other Areas]	SHR127	Bushing, AC Cord	1	
23	SGPY4A [X, XA] SGPY4–1A [XL] SGPY4B [E] SGPY4C [Other Areas]	SGPY4A	Rear Panel	1	

Technics

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shiba-koen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Ref. No.	Change of Part No. SH-8015 (ORDER NO. SD81041867C8) → SH-8015 [PA, PE]		Part Name & Description	Per Set (Pcs.)	Remarks
SCREWS and WASHERS					
N1	XTB3+6BFN	XTB3+6BFN	Screw, Tapping, ⊕ 3 x 6 (Cabinet)	4	WDD
	XTB3+6BFZ ⊗				
N2	XTB3+8BFN	XTB3+8BFN	Screw, Tapping, ⊕ 3 x 8 (Front Panel)	8	WDD
	XTB3+8BFZ ⊗				
N3	XTB4+8BFN	XTB4+8BFN	Screw, Tapping, ⊕ 4 x 8 (Cabinet)	2	WDD
	XTB4+8BFZ ⊗				
N14	XWC3B [XL]	Deletion	Washer, Toothed Lock, ϕ3	0	
PACKING PARTS					
P4	SPGY20 [Other Areas]	SPGY20	Carton Box	1	
	SPGY22 [EF]				
	SPGY23 [XL]				
P5	SPSY16 [XL]	Deletion	Pad	0	
P6	SQXY50020	SQXY50018	Instructions Book, Printed Matter	1	O
		SQXY50021	Instructions Book, Printed Matter	1	O

Printed in Japan
81040450Ⓗ QM/KK/HS

ORDER NO. SD81041867C8

Service Manual

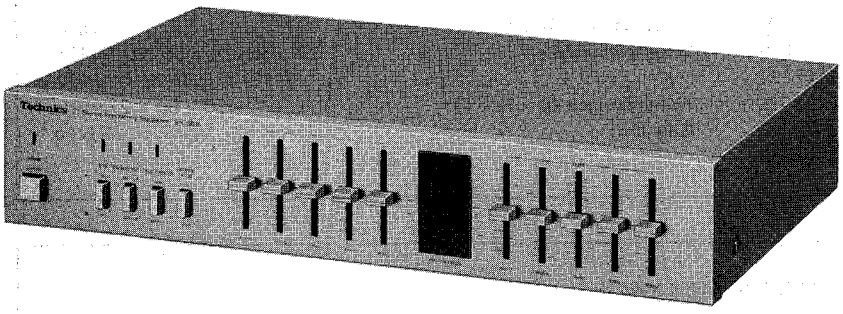
Stereo Frequency Equalizer

SH-8015

[E], [EG], [EF], [EH], [EB], [Ei], [EK], [XL], [XA]

SH-8015(K)

[E], [EG], [EH], [EB], [EK], [XA]



***The colors of this model included silver and black. The black type model is provided with (K) in the Service Manual.**

Areas

* [E] is available in Switzerland and Scandinavia.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.

English

Specifications

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

Maximum output voltage	6 V (1 kHz)
Total harmonic distortion + noise	0.02% (20 Hz ~ 20 kHz)
S/N	95 dB (101 dB, IHF '66)
Frequency response	5 Hz ~ 100 kHz, – 3 dB
Rated output voltage	1 V
Input sensitivity	1 V
Maximum input voltage	6 V (1 kHz)
Input impedance	47 kilohms
Gain	0 ± 1 dB
Channel balance 250 Hz ~ 6300 Hz	± 0.3 dB
Channel separation 1 kHz	55 dB
Band level controls	+ 3 dB ~ –3 dB, + 12 dB ~ –12 dB (5 elements continuously variable)
Center frequency	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

General

Power consumption	15 W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W x H x D)	430 x 86 x 273 mm (16-15/16" x 3-3/8" x 10-3/4")
Weight	3.5 kg (7.6 lb)

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Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Deutsch

TECHNISCHE DATEN

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

[DIN 45 500]

Maximalausgangsspannung:	6 V (1 kHz)
Gesamtklirrfaktor + Rauschen:	0.02% (20 Hz ~ 20 kHz)
Rauschabstand:	95 dB (101 dB, IHF '66)
Frequenzgang:	5 Hz ~ 100 kHz, –3 dB
Nennausgangsspannung:	1 V
Eingangsspannung:	1 V
Maximaleingangsspannung:	6 V (1 kHz)
Eingangsimpedanz:	47 kΩ
Verstärkung:	0 ± 1 dB
Kanalsy mmetrie 250 Hz ~ 6300 Hz:	± 0.3 dB
Kanaltrennung 1 kHz	55 dB
Frequenzgangregler:	+ 3 dB ~ – 3 dB, + 12 dB ~ –12 dB (5 Regler, stufenlos verstellbar)
Mittenfrequenzen:	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

ALLGEMEINE DATEN

Leistungsaufnahme:	15 W
Stromversorgung:	Wechselstrom 50 Hz/ 60 Hz, 110V/120V/220V/240V
Abmessungen (B x H x T):	430 x 86 x 273 mm
Gewicht:	3,5 kg

Français

DONNEES TECHNIQUES

Sujet à changement sans préaris.

[DIN 45 500]

Tension de sortie maximale:	6 V (1 kHz)
Distorsion harmonique totale + bruit:	0.02% (20 Hz ~ 20 kHz)
Signal/bruit:	95 dB (101 dB, IHF '66)
Courbe de réponse:	5 Hz à 100 kHz à –3 dB
Tension de sortie nominale:	1 V
Sensibilité d'entrée:	1 V
Tension d'entrée maximale:	6 V (1 kHz)
Impédance d'entrée:	47 kilohms
Gain:	0 ± 1 dB
Equillbrage de canal 250 Hz ~ 6300 Hz:	± 0.3 dB
Séparation de canal 1 kHz:	55 dB
Commandes de niveau de gamme:	+ 3 dB à –3 dB, +12 dB à –12 dB (5 éléments, continuellement variables)
Frèquences charnières:	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

GENERALITES

Consommation:	15 W
Alimentation:	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (l x h x pr) mm:	430 x 86 x 273 mm (16-15/16" x 3-3/8" x 10-3/4")
Poids:	3.5 kg (7.6 lb)

■ TO REMOVE THE PRINTED CIRCUIT BOARD

1. Remove the 2 setscrews on the side and 4 setscrews on the back of the cabinet. (Ⓐ in Fig. 1)
2. Remove the cabinet.
3. Remove the 3 setscrews (Ⓑ in Fig. 1) used to secure the chassis.
4. Remove the 2 setscrews (Ⓒ in Fig. 2) used to secure the terminal.
5. Remove the 3 setscrews (Ⓓ in Fig. 2) used to secure the printed circuit board.
6. Remove the 2 setscrews (Ⓔ in Fig. 2) from the rear panel.
7. Pull out the connecting lead from rec/play socket.
8. Remove the printed circuit board with front panel.

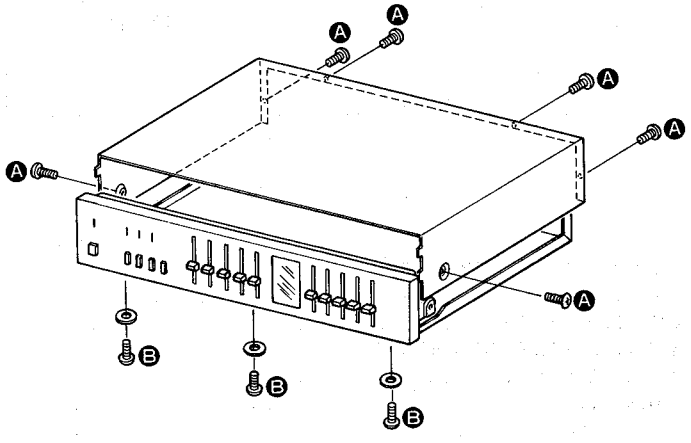


Fig. 1

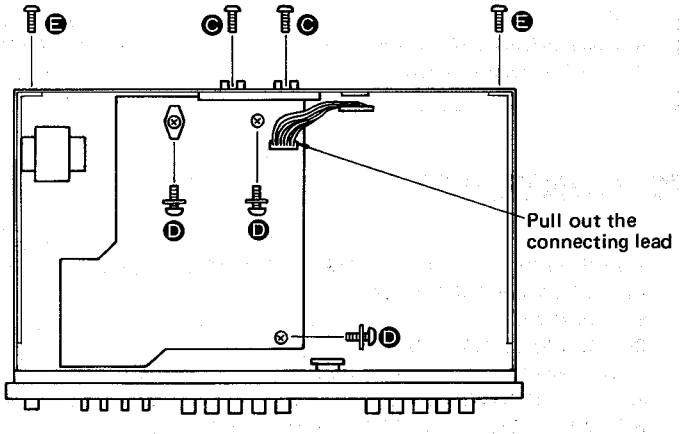
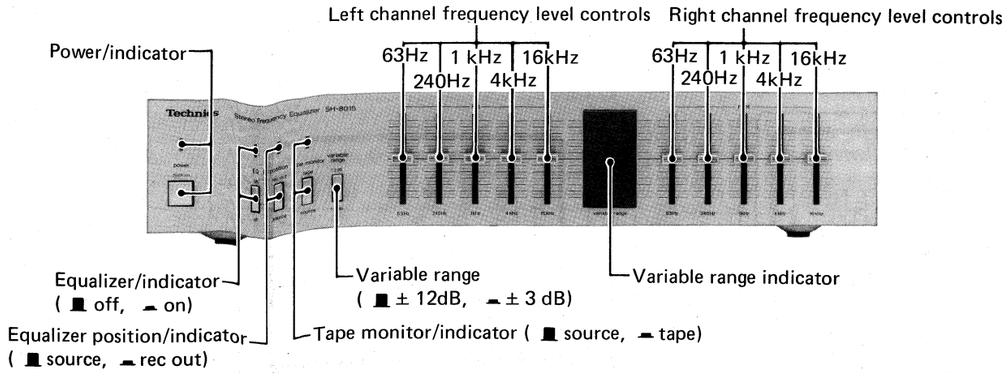
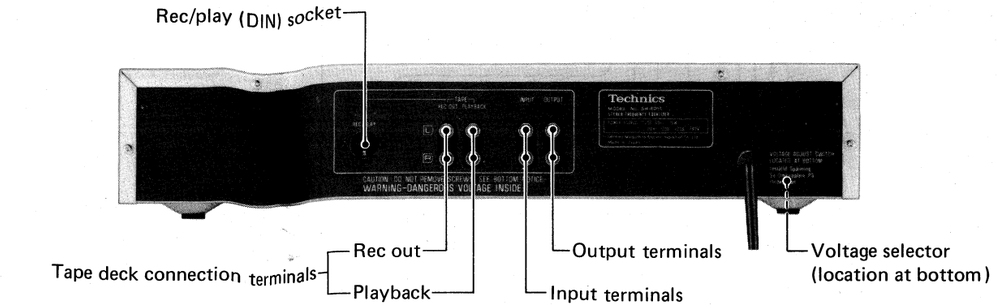
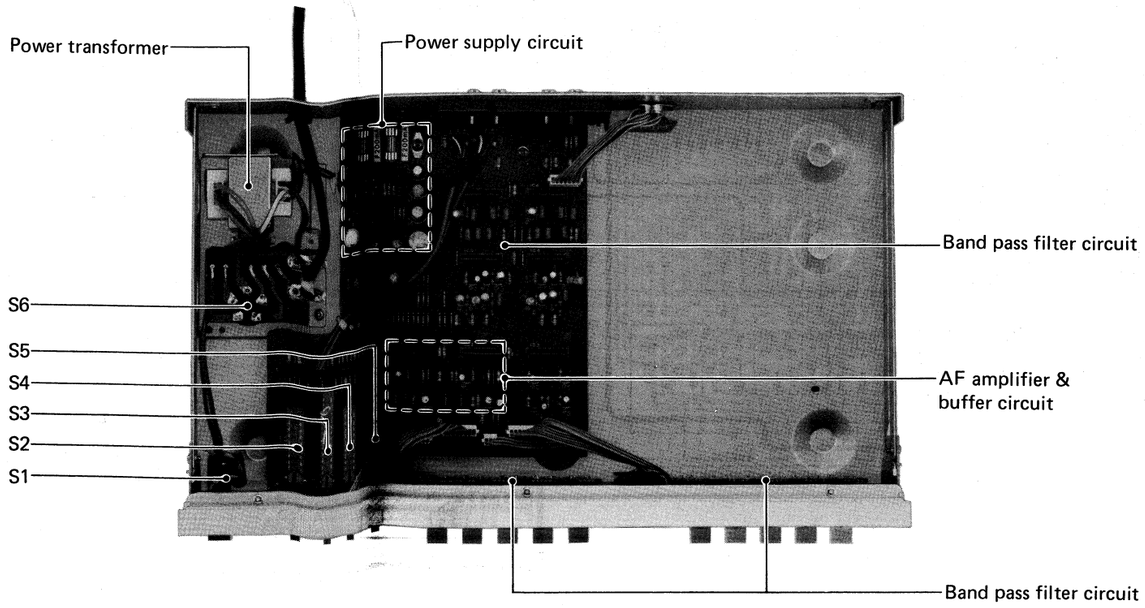


Fig. 2

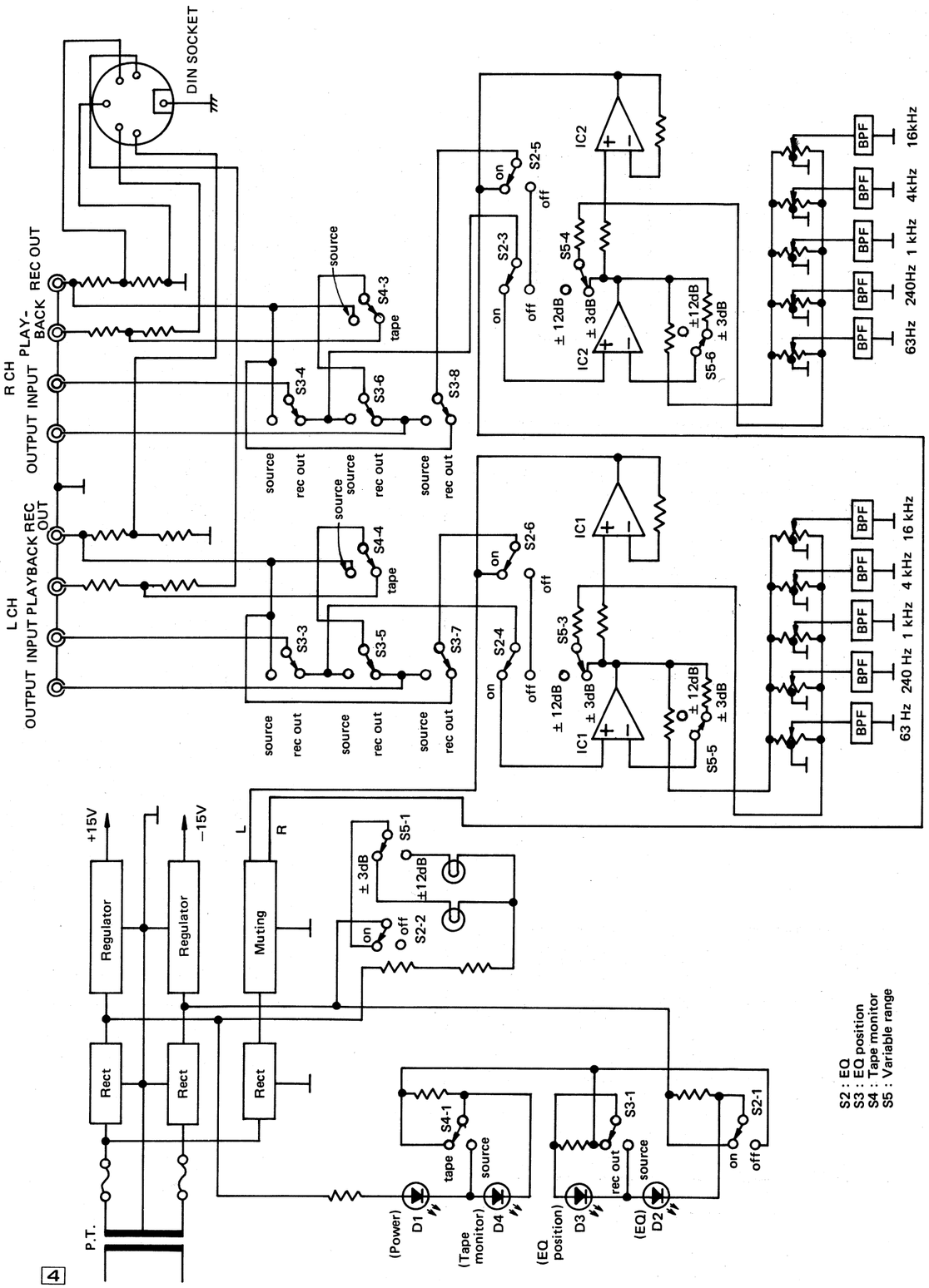
■ LOCATION OF CONTROLS



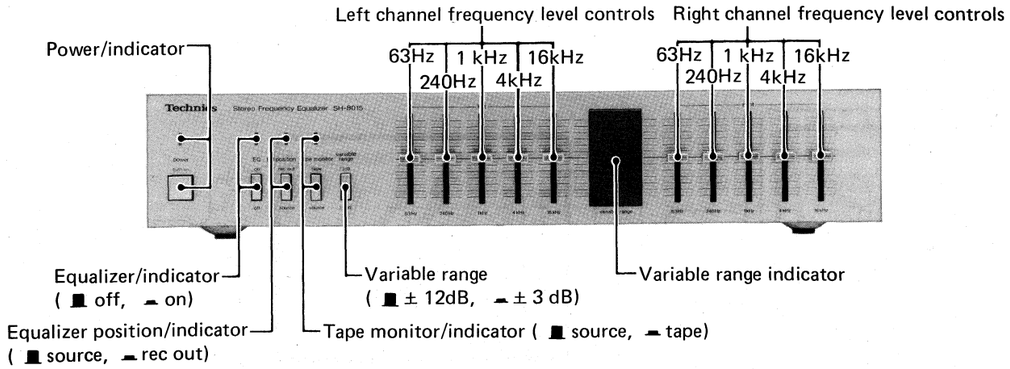


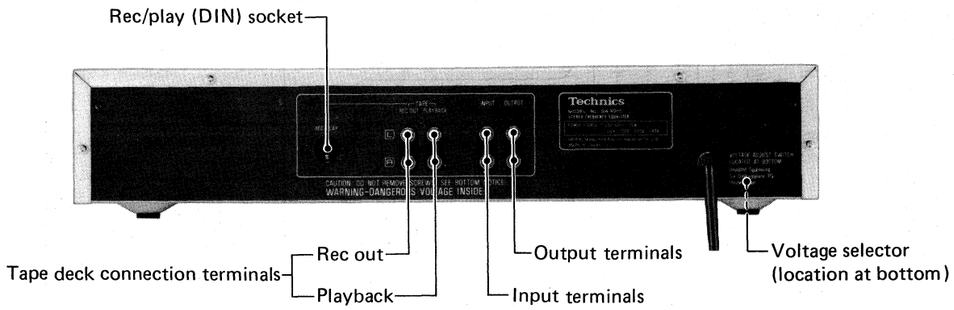


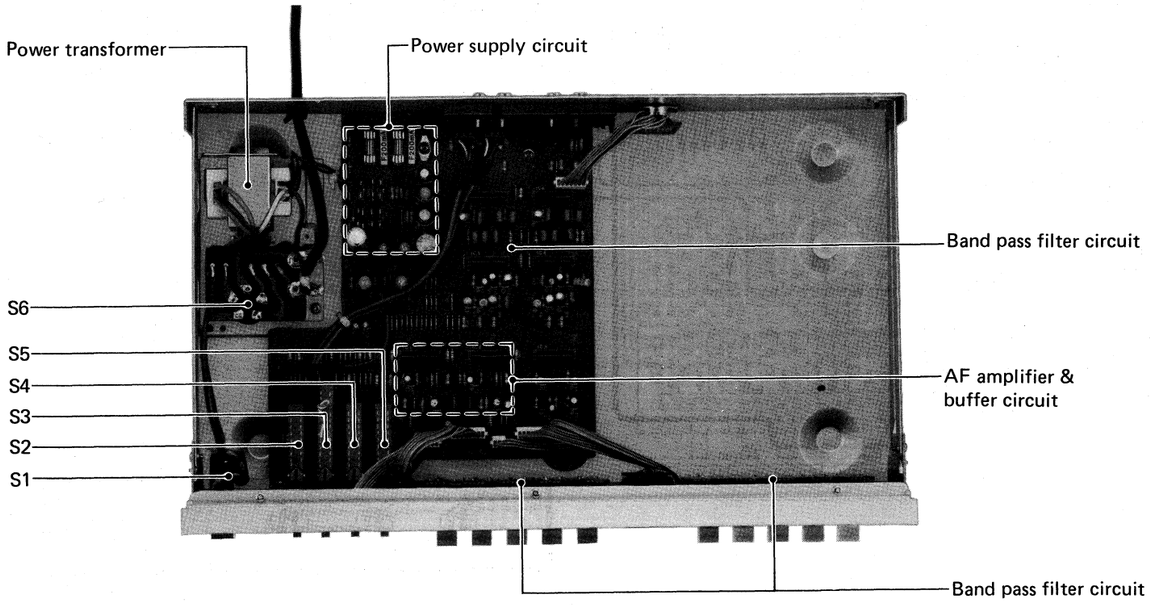
■ BLOCK DIAGRAM



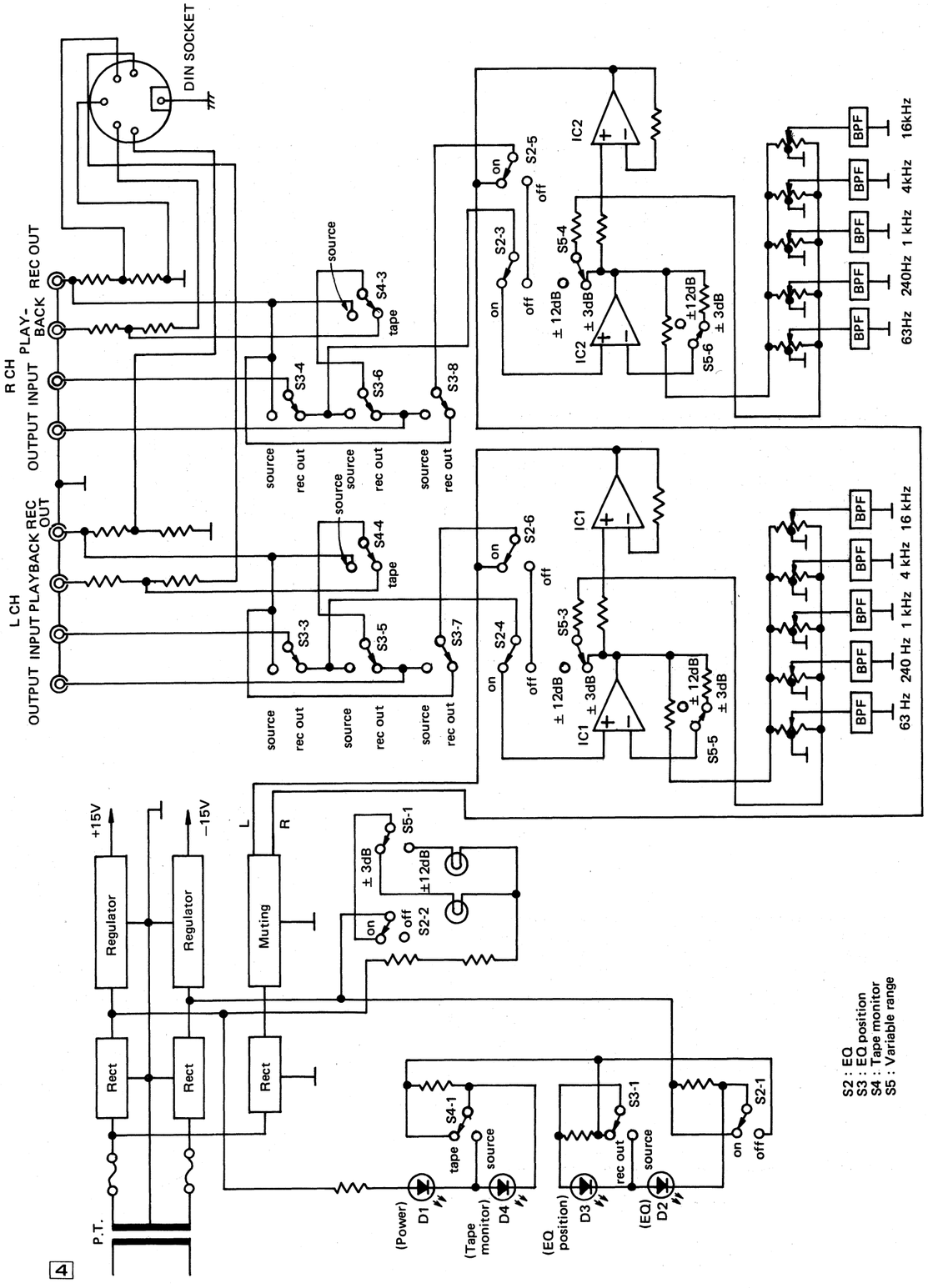
■ LOCATION OF CONTROLS





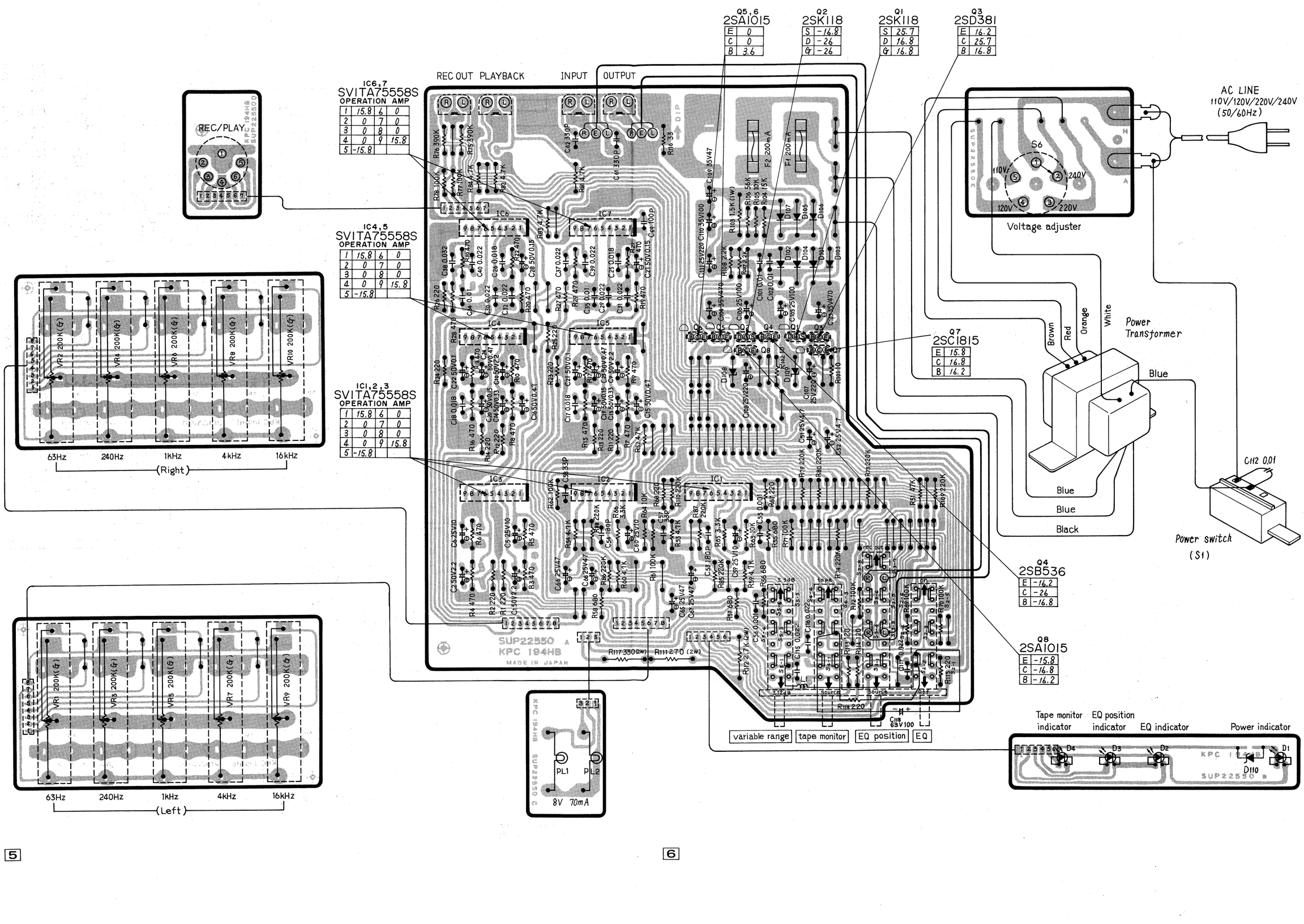


■ BLOCK DIAGRAM



■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

Ground (Earth) Lines



5

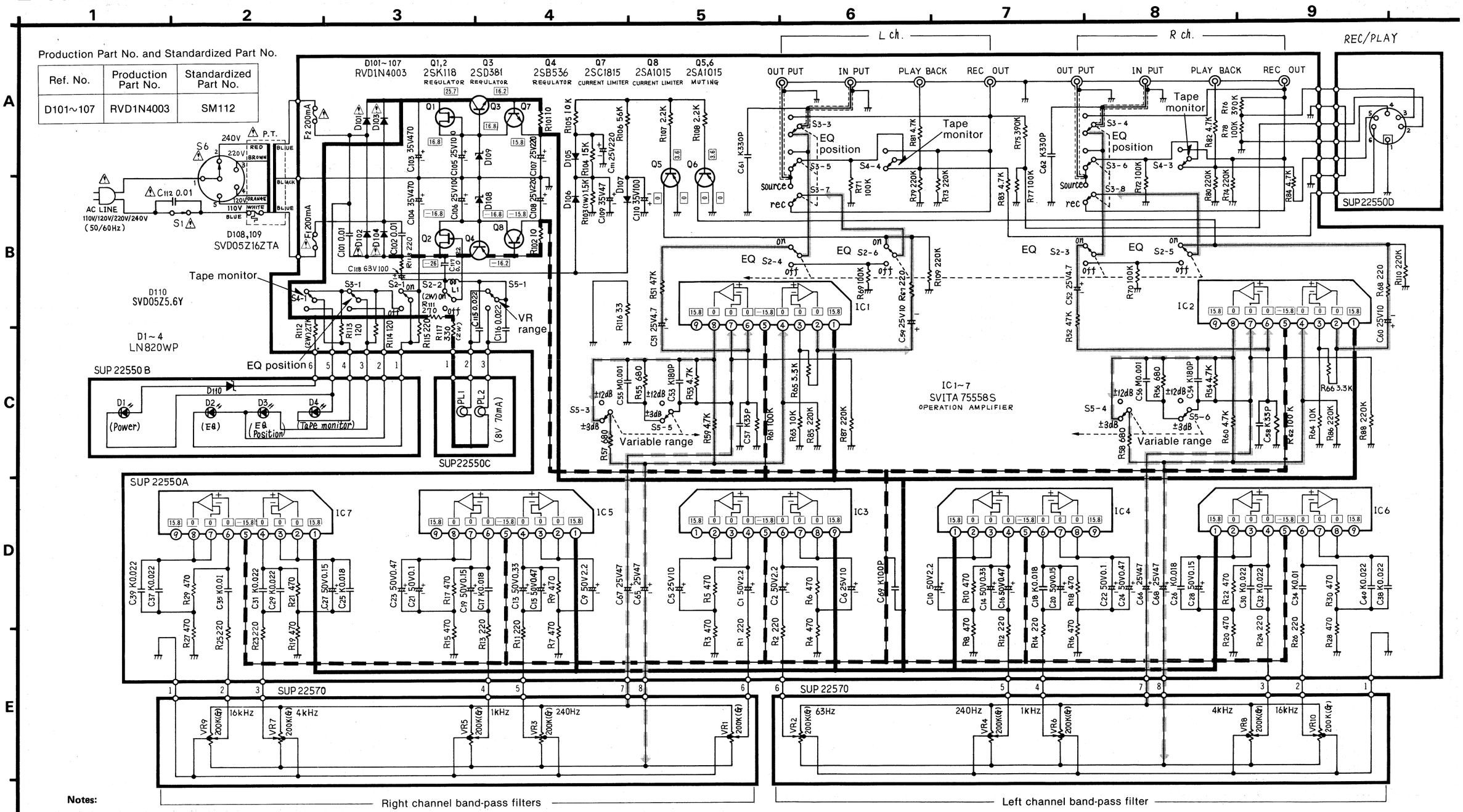
6

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Production Part No. and Standardized Part No.

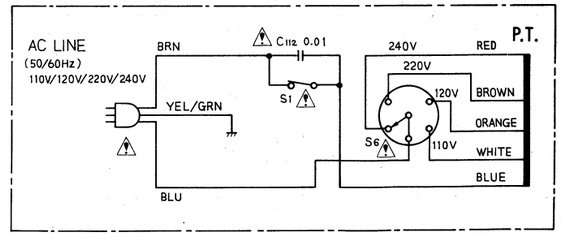
Ref. No.	Production Part No.	Standardized Part No.
D101~107	RVD1N4003	SM112



Notes:

1. **S1** : Power on/off switch in "**on**" position.
2. **S2-1** ~ **S2-6** : Equalizer on/off switch in "**on**" position
3. **S3-1** ~ **S3-8** : Equalizer position switch in "**rec out**" position (rec out/source)
4. **S4-1** ~ **S4-4** : Tape monitor switch in "**tape**" position. (tape/ source)
5. **S5-1** ~ **S5-6** : Variable range switch in "**± 3 dB**" position. (± 3 dB/± 12 dB)
6. **S6** : Voltage selector switch in "**240V**" position.
7. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   Standards values.
8. Signal lines (BPF)
9. ⊕ B, ⊖ B
10. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

• Power source circuit
Product for Australia [XL]

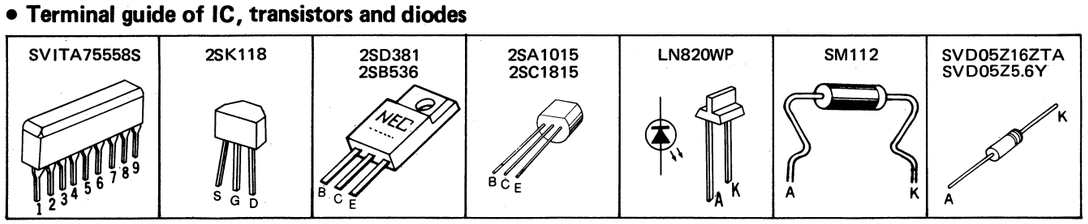


■ REPLACEMENT PARTS LIST (Electric Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC1 ~ 7		SVITA75558S	IC, Operation Amplifier
TRANSISTORS			
Q1, 2		2SK118	Transistor, Regulator [FET]
Q3		**2SD381–L**	Transistor, Regulator
Q4		**2SB536–L**	Transistor, Regulator
Q5, 6, 8		2SA1015–Y	Transistor, Muting & Current Limiter
Q7		2SC1815–Y	Transistor, Current Limiter
DIODES			
D1 ~ 4		LN820WP	Light Emitting Diode, Indicator
D101 ~ 107	⚠	**SM112**	Rectifier
D108, 109		SVD05Z16ZTA	Zener Diode, 16V
D110		SVD05Z5.6Y	Zener Diode, 5.6V
TRANSFORMER and COIL			
P.T	⚠	SLT5J103–W	Transformer, Power Source
L1		SLQX102–1Y	Choke Coil
FUSES			
F1, 2	⚠	XBA2C02SS0	Fuse, 200mA (250V)
VARIABLE RESISTORS			
VR1 ~ 10		EVAU01D20G25	Frequency Level Control, 200kΩ (G)
LAMPS			
PL1, 2		XAMR68S8	Lamp (8V, 70mA)
SWITCHES			
S1	⚠	ESB90619S	Switch, Power Source
S2 ~ 5		SSHY2	Switch, EQ, EQ Position, Tape Monitor, Variable Range
S6	⚠	ESE372	Switch, Voltage Adjuster
RESISTORS			
R1, 2		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R3, 4		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R5, 6		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R7, 8		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R9, 10		**ERD25TJ471**	Carbon, 1/4W, 470Ω, ± 5%
R11, 12		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R13, 14		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R15, 16		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R17, 18		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R19, 20		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R21, 22		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R23, 24		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R25, 26		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R27, 28		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R29, 30		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R51, 52		**ERD25TJ473**	Carbon, 1/4W, 47kΩ, ± 5%
R53, 54		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R55, 56		**ERD25FJ681**	Carbon, 1/4W, 680Ω, ± 5%
R57, 58		**ERD25FJ681**	Carbon, 1/4W, 680Ω, ± 5%
R59, 60		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R61, 62		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R63, 64		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ± 5%
R65, 66		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ± 5%
R67, 68		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R69, 70		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R71, 72		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R73, 74		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R75, 76		**ERD25TJ394**	Carbon, 1/4W, 390kΩ, ± 5%
R77, 78		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R79, 80		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R81, 82		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R83, 84		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R85, 86		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R87, 88		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R101, 102		**ERD25FJ100**	Carbon, 1/4W, 10Ω, ± 5%
R103		**ERG1ANJ152**	Metal Oxide, 1W, 1.5kΩ, ± 5%
R104		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ± 5%
R105		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ± 5%
R106		**ERD25TJ563**	Carbon, 1/4W, 56kΩ, ± 5%
R107, 108		**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ± 5%
R109, 110		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R111		**ERG2ANJ271**	Metal Oxide, 2W, 270Ω, ± 5%
R112		**ERG2ANJ272**	Metal Oxide, 2W, 2.7kΩ, ± 5%
R113, 114		**ERD25FJ121**	Carbon, 1/4W, 120Ω, ± 5%
R115		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R116		**ERD25FJ330**	Carbon, 1/4W, 33Ω, ± 5%
R117		**ERG2ANJ331**	Metal Oxide, 2W, 330Ω, ± 5%
R118		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
CAPACITORS			
C1, 2		**ECEA50Z2R2**	Electrolytic, 50V, 2.2μF
C5, 6		**ECEA1HS100**	Electrolytic, 50V, 10μF
C9, 10		**ECEA50Z2R2**	Electrolytic, 50V, 2.2μF
C13, 14		**ECEA50ZR33**	Electrolytic, 50V, 0.33μF
C15, 16		**ECEA50ZR47**	Electrolytic, 50V, 0.47μF
C17, 18		ECQM1H183KZ	Polyester, 50V, 0.018μF, ± 10%
C19, 20		**ECEA50ZR15**	Electrolytic, 50V, 0.15μF
C21, 22		**ECEA50ZR1**	Electrolytic, 50V, 0.1μF
C23, 24		**ECEA50ZR47**	Electrolytic, 50V, 0.47μF
C25, 26		ECQM1H183KZ	Polyester, 50V, 0.018μF, ± 10%
C27, 28		**ECEA50ZR15**	Electrolytic, 50V, 0.15μF
C29, 30		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C31, 32		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C34, 35		ECQM1H103KZ	Polyester, 50V, 0.01μF, ± 10%
C37, 38		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C39, 40		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C51, 52		**ECEA25Z4R7**	Electrolytic, 25V, 4.7μF
C53, 54		ECCD1H181K	Ceramic, 50V, 180pF, ± 10%
C55, 56		ECKD1H102MD	Ceramic, 50V, 0.001μF, ± 10%
C57, 58		ECCD1H330KC	Ceramic, 50V, 33pF, ± 10%
C59, 60		**ECEA1HS100**	Electrolytic, 50V, 10μF,
C61, 62		ECKD1H331KB	Ceramic, 50V, 330pF, ± 10%
C65, 66		**ECEA1ES470**	Electrolytic, 25V, 47μF
C67, 68		**ECEA1ES470**	Electrolytic, 25V, 47μF,
C69		ECCD1H101K	Ceramic, 50V, 100pF, ± 10%
C101, 102		ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80% −20%
C103, 104		**ECEA1VS471**	Electrolytic, 35V, 470μF
C105, 106		**ECEA1ES101**	Electrolytic, 25V, 100μF
C107, 108		**ECEA1ES221**	Electrolytic, 25V, 220μF
C109		**ECEA1HS470**	Electrolytic, 50V, 47μF
C110		**ECEA1VS101**	Electrolytic, 35V, 100μF
C111		**ECEA1ES221**	Electrolytic, 25V, 220μF
C112	⚠	ECKDKC103PF	Ceramic, 400VAC, 0.01μF, +100% −0%
C115, 116		ECKD1H223ZF	Ceramic, 50V, 0.022μF, +80% −20%
C117		ECKD1H223ZF	Ceramic, 50V, 0.022μF, +80% −20%
C118		**ECEA1JS101**	Electrolytic, 63V, 100μF

• Terminal guide of IC, transistors and diodes



■ REPLACEMENT PARTS LIST (Cabinet and Chassis Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. [K] -marked parts are used for black only, while ○-marked parts are for silver type only.
4. Parts other than [K]- and ○-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No. SH-8015 (K)

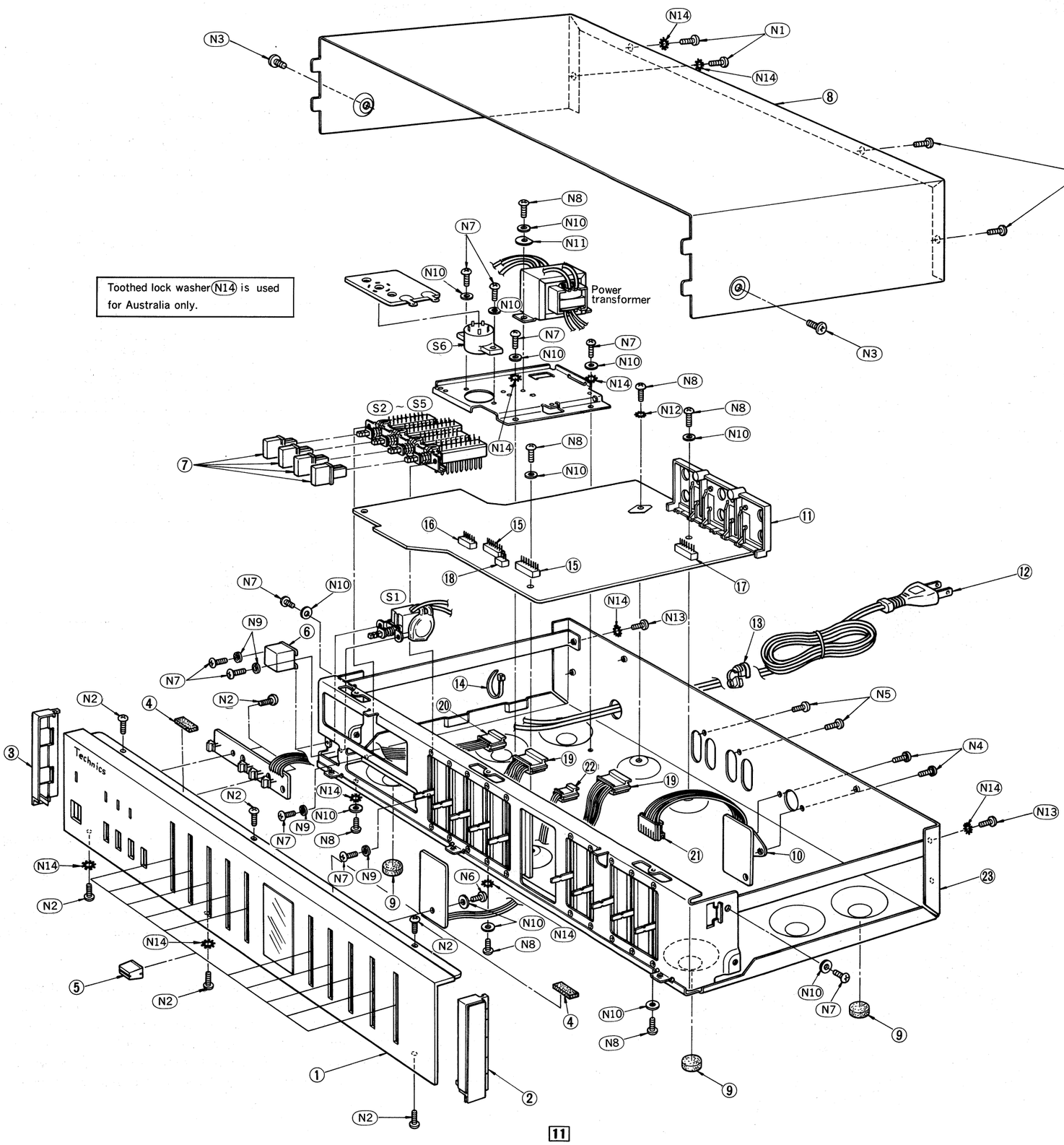
Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1	○	SGWH8015XA	Panel, Front Ass'y
1	[K]	SGWH8015KD	Panel, Front Ass'y (Black)
2	○	SGX7027–2	Ornament, Right Side
2	[K]	SGX7027–1	Ornament, Right Side (Black)
3	○	SGX7029–2	Ornament, Left Side
3	[K]	SGX7029–1	Ornament, Left Side (Black)
4		RHG675A	Rubber
5		SBDY4	Knob, Frequency Level Control
6		SBC307–1	Button, Power Switch
7		SBC339	Button, Push Switch
8	○	SKC750S	Cabinet
8	[K]	SKC750B	Cabinet (Black)
9		SKL245	Foot, Bottom
10		SJS6509	Socket, Rec/Play
11		SJF3049–1N	Terminal, Output, Input/Tape
12 [EK] only	Δ	**RJA45Z**	AC Cord
12 [X, XA] only	Δ	**RJA52Z**	AC Cord
12 [XL] only	Δ	QFC1207MA	AC Cord
12 [Other Areas]	Δ	**SJA88**	AC Cord
13 [XL] only		SHR131	Bushing, AC Cord
13 [EK] only		SHR129	Bushing, AC Cord
13 [Other Areas]		SHR127	Bushing, AC Cord
14		SHRY1	Cord Band
15		SJT3805	Plug (8 Pin)
16		SJT3607	Plug (6 Pin)
17		SJT3707	Plug (7 Pin)
18		SJT3311	Plug (3 Pin)
19		SWCY5–1	Lead (With 8 Pin Socket)
20		SWCY6	Lead (With 6 Pin Socket)
21		SWCY7	Lead (With 7 Pin Socket)
22		SWCY3	Lead (With 3 Pin Socket)
23 [X, XA] only		SGPY4A	Rear Panel
23 [XL] only		SGPY4–1A	Rear Panel
23 [E] only		SGPY4B	Rear Panel
23 [Other Areas]		SGPY4C	Rear Panel

Ref. No.		Part No.	Part Name & Description
SCREWS and WASHERS			
N1	○	**XTB3+6BFN**	Screw, Tapping, ⊕ 3 x 6 (Cabinet)
N1	[K]	**XTB3+6BFZ**	Screw, Tapping, ⊕ 3 x 6 (Cabinet), Black
N2	○	**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8 (Front Panel LED P.C.B.)
N2	[K]	**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8 (Front Panel LED P.C.B.), Black
N3	○	**XTB4+8BFN**	Screw, Tapping, ⊕ 4 x 8 (Cabinet)
N3	[K]	**XTB4+8BFZ**	Screw, Tapping, ⊕ 4 x 8 (Cabinet), Black
N4		**XYN3+C6FZ**	Screw, ⊕ 3 x 6 (Rec/Play Socket)
N5		**XTN3+10BFZ**	Screw, Tapping, ⊕ 3 x 10 (Terminal)
N6		**XTN3+8B**	Screw, Tapping, ⊕ 3 x 8 (Reflector P.C.B.)
N7		**XSN3+6S**	Screw, ⊕ 3 x 6 (Voltage Adjustor, Switch)
N8		**XSN3+8S**	Screw, ⊕ 3 x 8 (Transformer, P.C.B.)
N9		**XWA3B**	Washer, Spring, φ3
N10		**XWG3**	Washer, Plain, φ3
N11		**XNT3**	Washer, φ3
N12		**XWC3B**	Washer, Toothed Lock, φ3
N13		**XTB3+6BFZ**	Screw, Tapping, ⊕ 3 x 6 (Rear Panel)
N14 [XL] only		**XWC3B**	Washer, Toothed Lock, φ3
ACCESSORIES			
A1		SJP2129–5	Cord, Connection
A2 [X, XA] only	Δ	RJP120ZS	Plug Adaptor, AC Power
PACKING PARTS			
P1		SPP649	Polyethylene Bag
P2		SPSY11	Pad, Left Side
P3		SPSY12	Pad, Right Side
P4 [Other Areas]		SPGY20	Carton Box
P4 [EF] only		SPGY22	Carton Box
P4 [XL] only		SPGY23	Carton Box
P5 [XL] only		SPSY16	Pad
P6		SQXY50020	Instruction Book, Printed Matter

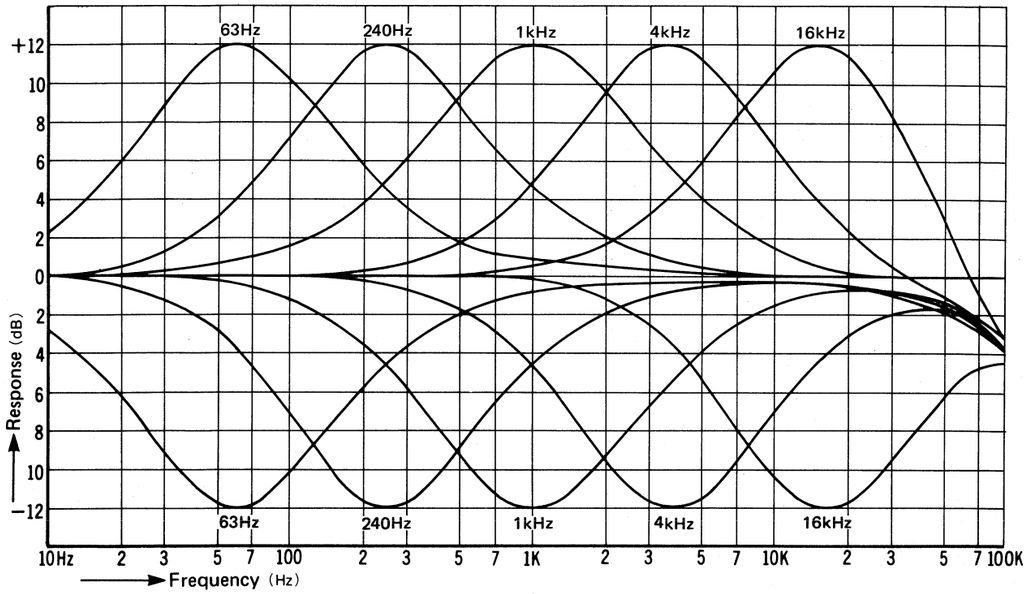
Areas

* [E] is available in Switzerland and Scandinavia.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.

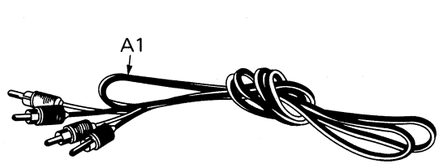
■ EXPLODED VIEW

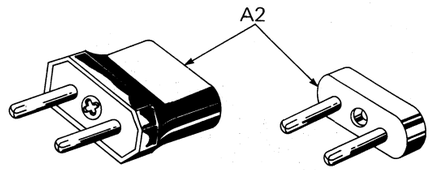


■ TOTAL FREQUENCY RESPONSE

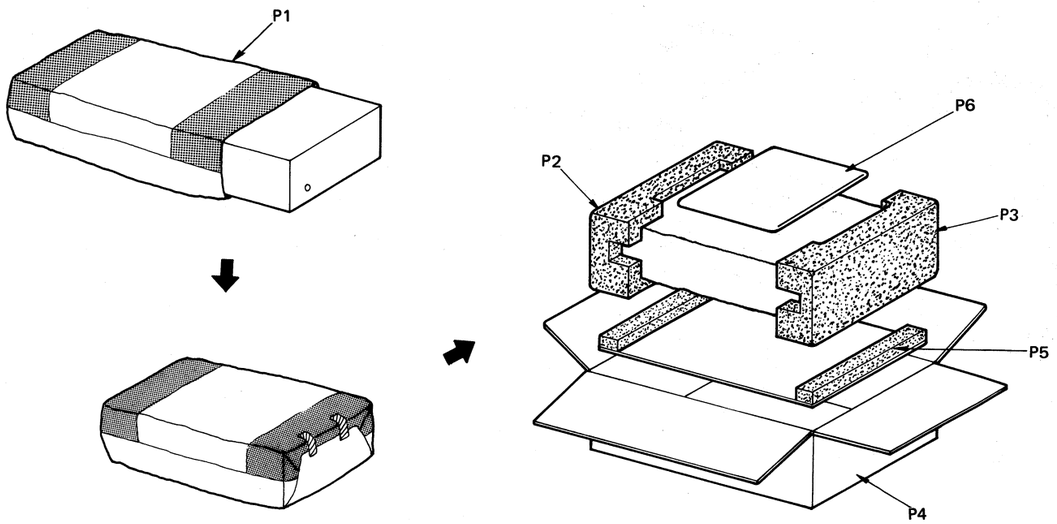


■ ACCESSORIES

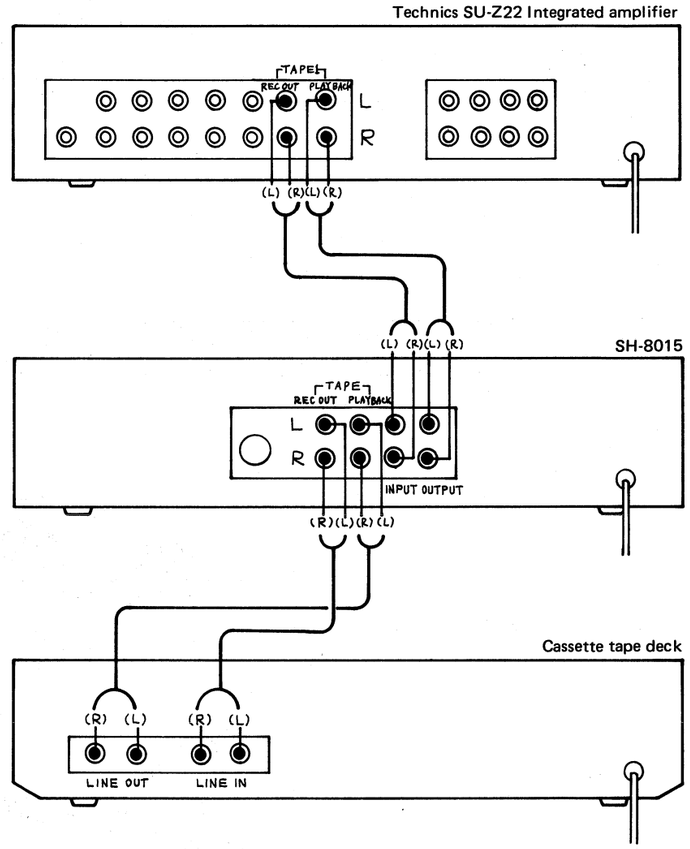




■ PACKINGS



■ CONNECTIONS



• Tape-monitor selector

▙ source:
Set to this position to listen to the radio or a disc.
▂ tape:
Set to this position to listen to a tape deck.

• Equalization-position selector

▙ source:
Set to this position in order to control the frequency response under the following conditions:
- When listening to the radio or a disc while the tape-monitor selector is set to the "source" (▂→▙) position.
- When listening to a tape deck while the tape-monitor selector is set to the "tape" (▙→▂) position.

▂ rec out:
Set to this position in order to make a tape recording of a radio broadcast or a disc while controlling the frequency response. Also, compensated playback sound can be heard at this position.

• Equalization switch

This switch can be used to turn the equalization circuitry on and off. If the switch is set to the "off" position (▂→▙), input signals are sent directly to the output terminals, without passing through the frequency-equalization circuitry. When this switch is set to the "off" position (▂→▙), the band-level controls can be set to any position without affecting the signals, and signals can be heard even if the power switch is in the "off" position. Set to the "on" position (▙→▂) for control of the frequency response.
The efficiency of this unit can be easily checked by alternately setting this switch to the "on" and "off" positions.

Printed in Japan
81048200 Ⓗ QM/KK/HS

ORDER NO. SD81041868C4

Service Manual

Stereo Frequency Equalizer

SH-8015

[PA], [PE]

Areas

* [PA] is available in far East PX.
* [PE] is available in European Military.

Please use this manual together with the service manual for Model No. SH-8015 [E, EG, EF, EH, EB, Ei, EK, XL, XA] Order No. SD81041867C8.

CHANGES

■ REPLACEMENT PARTS LIST

Note: Ⓚ -marked parts are used for black only.

Ref. No.	Change of Part No. SH-8015 (ORDER NO. SD81041867C8)	→ SH-8015 [PA, PE]	Part Name & Description	Per Set (Pcs.)	Remarks
CABINET and CHASSIS PARTS					
1	SGWH8015XA SGWH8015KD Ⓚ	SGWH8015XA	Panel, Front Ass'y	1	
2	SGX7027–2 SGX7027–1 Ⓚ	SGX7027–2	Ornament, Right Side	1	
3	SGX7029–2 SGX7029–1 Ⓚ	SGX7029–2	Ornament, Left Side	1	
8	SKC750S SKC750B Ⓚ	SKC750S	Cabinet	1	
12	RJA45Z [EK] RJA52Z [X, XA] QFC1207MA [XL] SJA88 [Other Areas]	RJA52Z	AC Cord	1	RD
13	SHR131 [XL] SHR129 [EK] SHR127 [Other Areas]	SHR127	Bushing, AC Cord	1	
23	SGPY4A [X, XA] SGPY4–1A [XL] SGPY4B [E] SGPY4C [Other Areas]	SGPY4A	Rear Panel	1	

Technics

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shiba-koen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Ref. No.	Change of Part No. SH-8015 (ORDER NO. SD81041867C8) → SH-8015 [PA, PE]		Part Name & Description	Per Set (Pcs.)	Remarks
SCREWS and WASHERS					
N1	XTB3+6BFN	XTB3+6BFN	Screw, Tapping, ⊕ 3 x 6 (Cabinet)	4	WDD
	XTB3+6BFZ Ⓚ				
N2	XTB3+8BFN	XTB3+8BFN	Screw, Tapping, ⊕ 3 x 8 (Front Panel)	8	WDD
	XTB3+8BFZ Ⓚ				
N3	XTB4+8BFN	XTB4+8BFN	Screw, Tapping, ⊕ 4 x 8 (Cabinet)	2	WDD
	XTB4+8BFZ Ⓚ				
N14	XWC3B [XL]	Deletion	Washer, Toothed Lock, ϕ3	0	
PACKING PARTS					
P4	SPGY20 [Other Areas]	SPGY20	Carton Box	1	
	SPGY22 [EF]				
	SPGY23 [XL]				
P5	SPSY16 [XL]	Deletion	Pad	0	
P6	SQXY50020	SQXY50018	Instructions Book, Printed Matter	1	○
		SQXY50021	Instructions Book, Printed Matter	1	○

Printed in Japan
81040450Ⓗ QM/KK/HS

ORDER NO. SD81041867C8

Service Manual

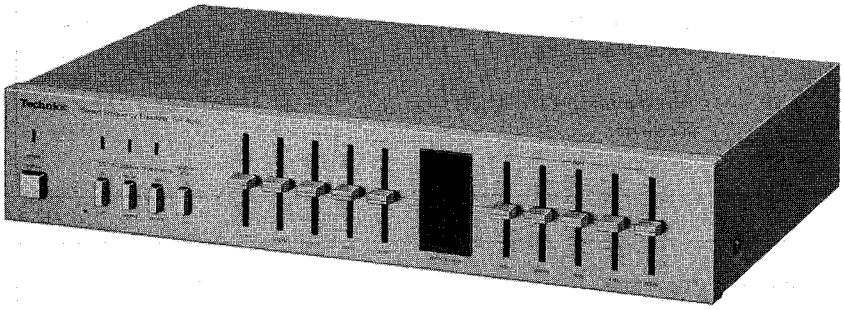
Stereo Frequency Equalizer

SH-8015

[E], [EG], [EF], [EH], [EB], [Ei], [EK], [XL], [XA]

SH-8015(K)

[E], [EG], [EH], [EB], [EK], [XA]



***The colors of this model included silver and black. The black type model is provided with (K) in the Service Manual.**

Areas

* [E] is available in Switzerland and Scandinavia.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.

English

Specifications

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

Maximum output voltage	6 V (1 kHz)
Total harmonic distortion + noise	0.02% (20 Hz ~ 20 kHz)
S/N	95 dB (101 dB, IHF '66)
Frequency response	5 Hz ~ 100 kHz, – 3 dB
Rated output voltage	1 V
Input sensitivity	1 V
Maximum input voltage	6 V (1 kHz)
Input impedance	47 kilohms
Gain	0 ± 1 dB
Channel balance 250 Hz ~ 6300 Hz	± 0.3 dB
Channel separation 1 kHz	55 dB
Band level controls	+ 3 dB ~ –3 dB, + 12 dB ~ –12 dB (5 elements continuously variable)
Center frequency	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

General

Power consumption	15 W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W x H x D)	430 x 86 x 273 mm (16-15/16" x 3-3/8" x 10-3/4")
Weight	3.5 kg (7.6 lb)

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Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Deutsch

TECHNISCHE DATEN

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

[DIN 45 500]

Maximalausgangsspannung:	6 V (1 kHz)
Gesamtklirrfaktor + Rauschen:	0.02% (20 Hz ~ 20 kHz)
Rauschabstand:	95 dB (101 dB, IHF '66)
Frequenzgang:	5 Hz ~ 100 kHz, –3 dB
Nennausgangsspannung:	1 V
Eingangsspannung:	1 V
Maximaleingangsspannung:	6 V (1 kHz)
Eingangsimpedanz:	47 kΩ
Verstärkung:	0 ± 1 dB
Kanalsy mmetrie 250 Hz ~ 6300 Hz:	± 0.3 dB
Kanaltrennung 1 kHz	55 dB
Frequenzgangregler:	+ 3 dB ~ – 3 dB, + 12 dB ~ –12 dB (5 Regler, stufenlos verstellbar)
Mittenfrequenzen:	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

ALLGEMEINE DATEN

Leistungsaufnahme:	15 W
Stromversorgung:	Wechselstrom 50 Hz/ 60 Hz, 110V/120V/220V/240V
Abmessungen (B x H x T):	430 x 86 x 273 mm
Gewicht:	3,5 kg

Français

DONNEES TECHNIQUES

Sujet à changement sans préaris.

[DIN 45 500]

Tension de sortie maximale:	6 V (1 kHz)
Distorsion harmonique totale + bruit:	0.02% (20 Hz ~ 20 kHz)
Signal/bruit:	95 dB (101 dB, IHF '66)
Courbe de réponse:	5 Hz à 100 kHz à –3 dB
Tension de sortie nominale:	1 V
Sensibilité d'entrée:	1 V
Tension d'entrée maximale:	6 V (1 kHz)
Impédance d'entrée:	47 kilohms
Gain:	0 ± 1 dB
Equillbrage de canal 250 Hz ~ 6300 Hz:	± 0.3 dB
Séparation de canal 1 kHz:	55 dB
Commandes de niveau de gamme:	+ 3 dB à –3 dB, +12 dB à –12 dB (5 éléments, continuellement variables)
Frèquences charnières:	63 Hz, 240 Hz, 1 kHz, 4 kHz, 16 kHz

GENERALITES

Consommation:	15 W
Alimentation:	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (l x h x pr) mm:	430 x 86 x 273 mm (16-15/16" x 3-3/8" x 10-3/4")
Poids:	3.5 kg (7.6 lb)

■ TO REMOVE THE PRINTED CIRCUIT BOARD

1. Remove the 2 setscrews on the side and 4 setscrews on the back of the cabinet. (Ⓐ in Fig. 1)
2. Remove the cabinet.
3. Remove the 3 setscrews (Ⓑ in Fig. 1) used to secure the chassis.
4. Remove the 2 setscrews (Ⓒ in Fig. 2) used to secure the terminal.
5. Remove the 3 setscrews (Ⓓ in Fig. 2) used to secure the printed circuit board.
6. Remove the 2 setscrews (Ⓔ in Fig. 2) from the rear panel.
7. Pull out the connecting lead from rec/play socket.
8. Remove the printed circuit board with front panel.

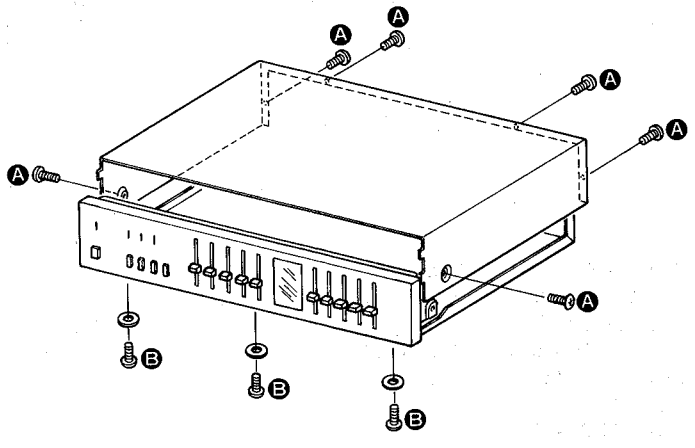


Fig. 1

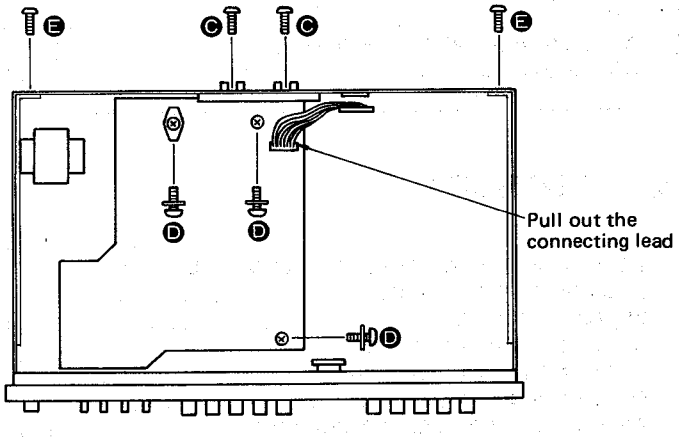
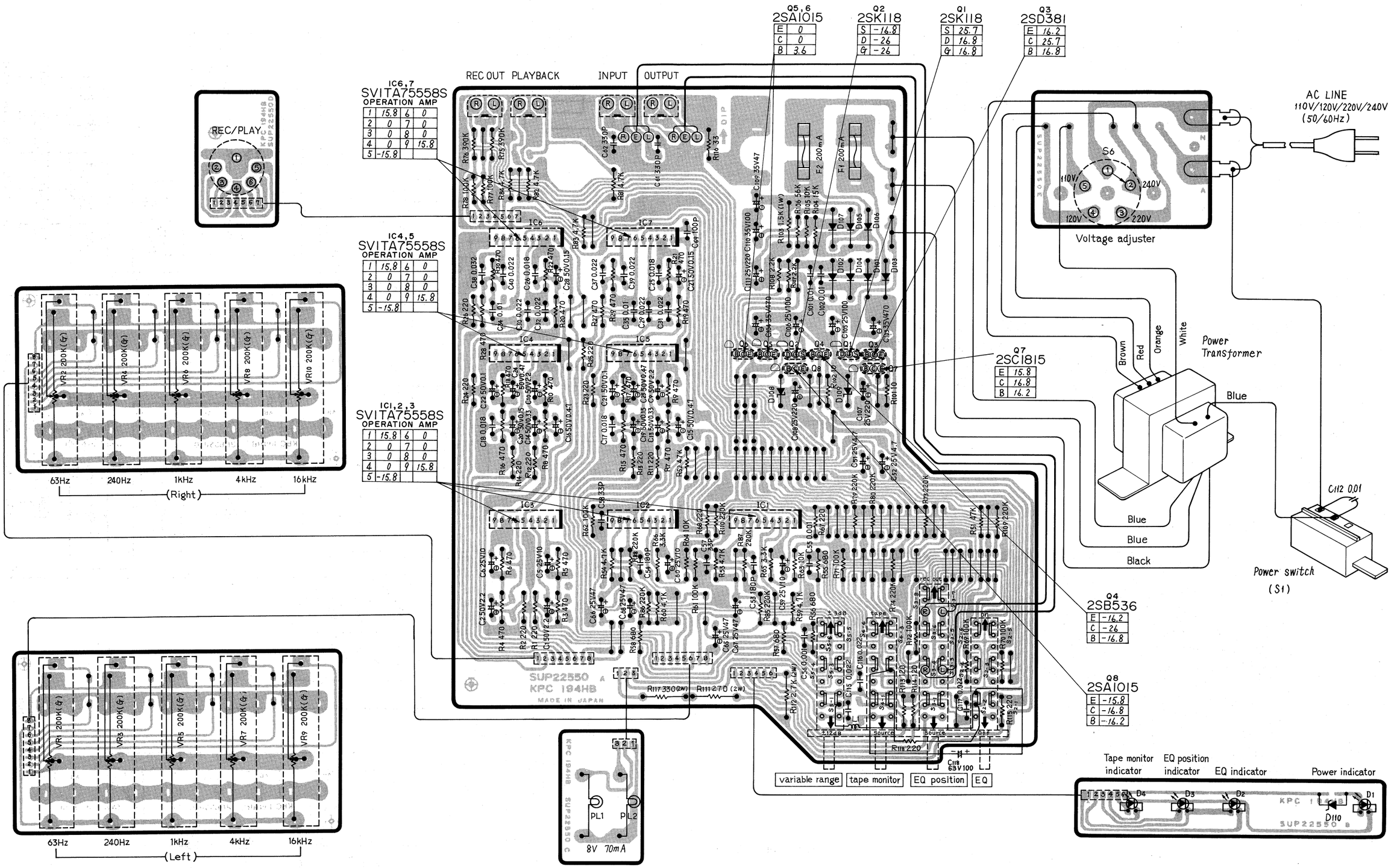


Fig. 2

■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

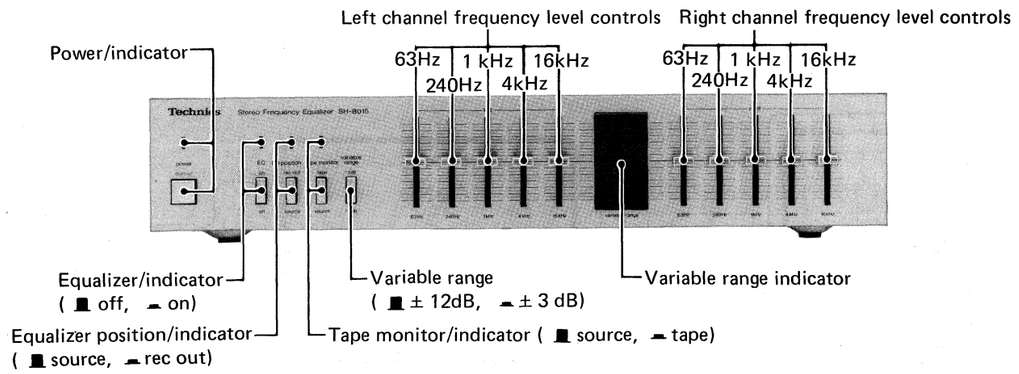
Ground (Earth) Lines

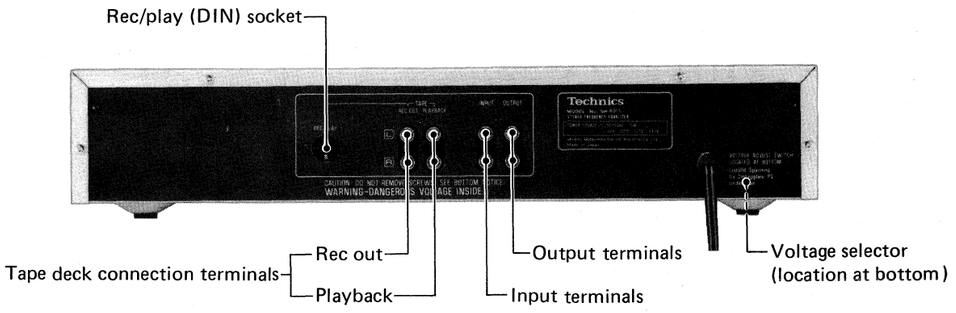


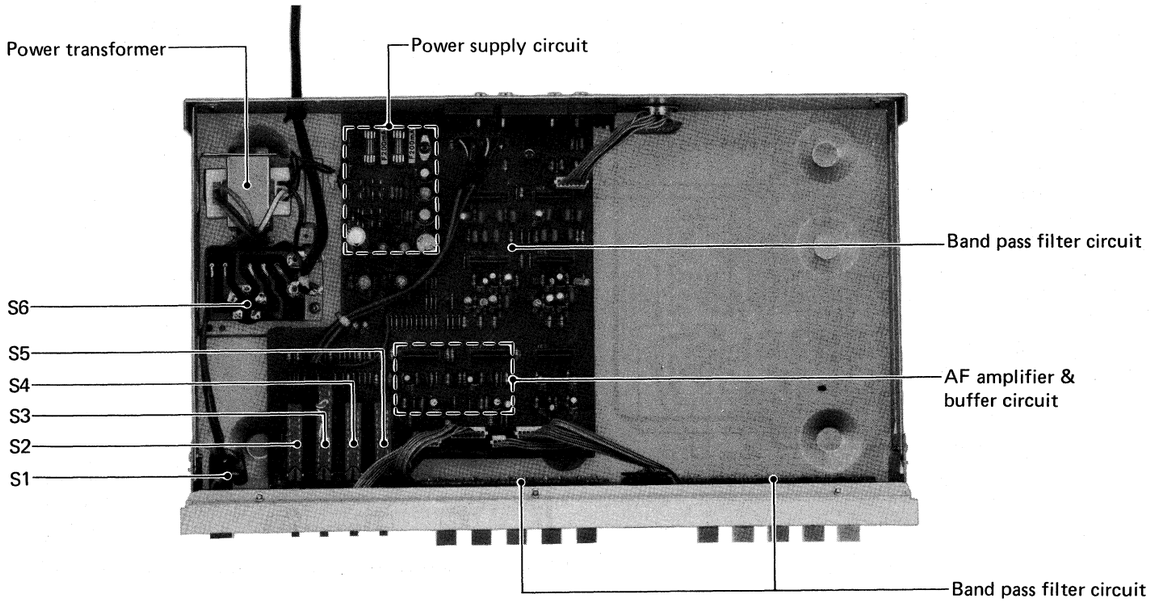
5

6

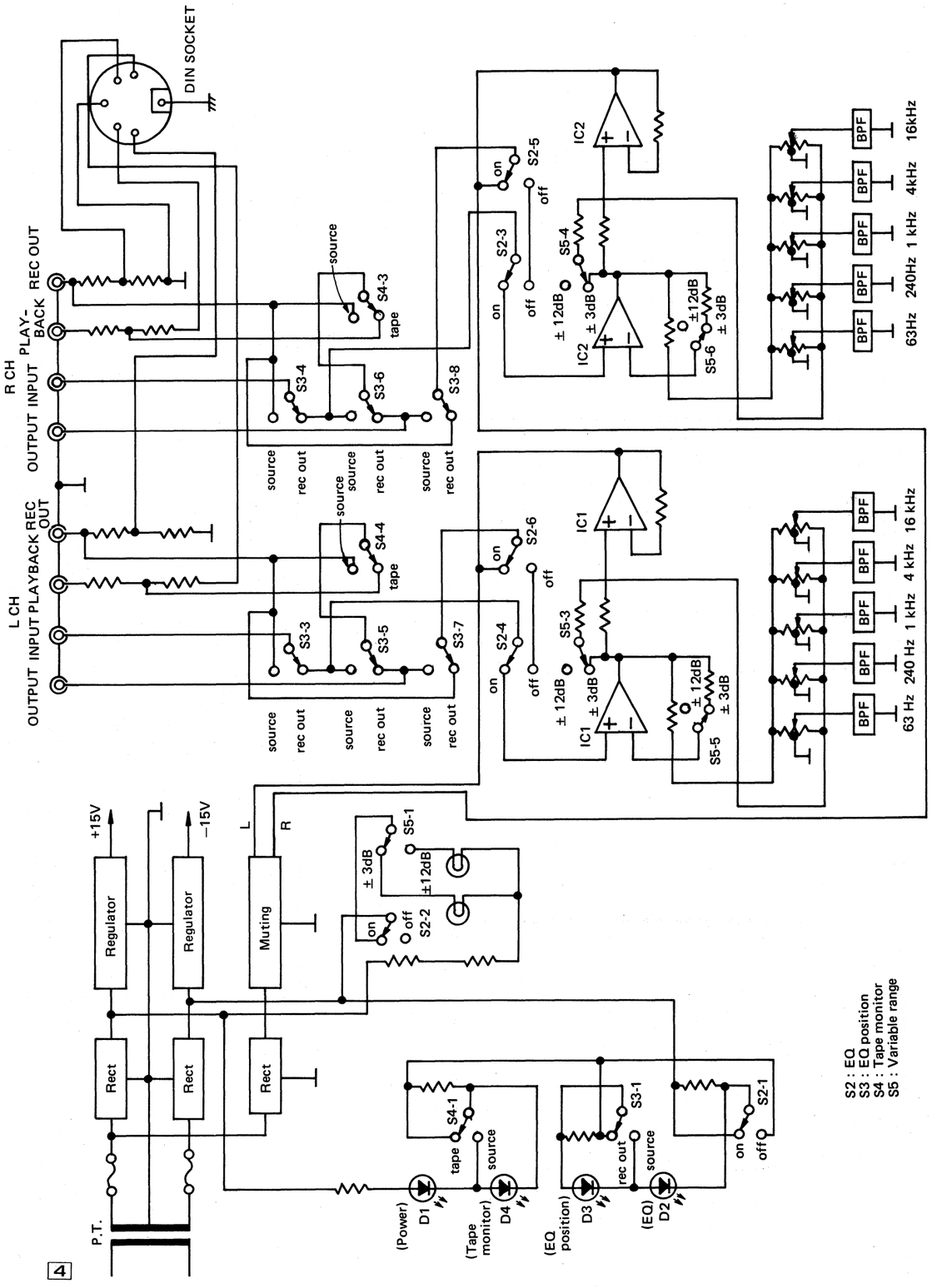
■ LOCATION OF CONTROLS







■ BLOCK DIAGRAM

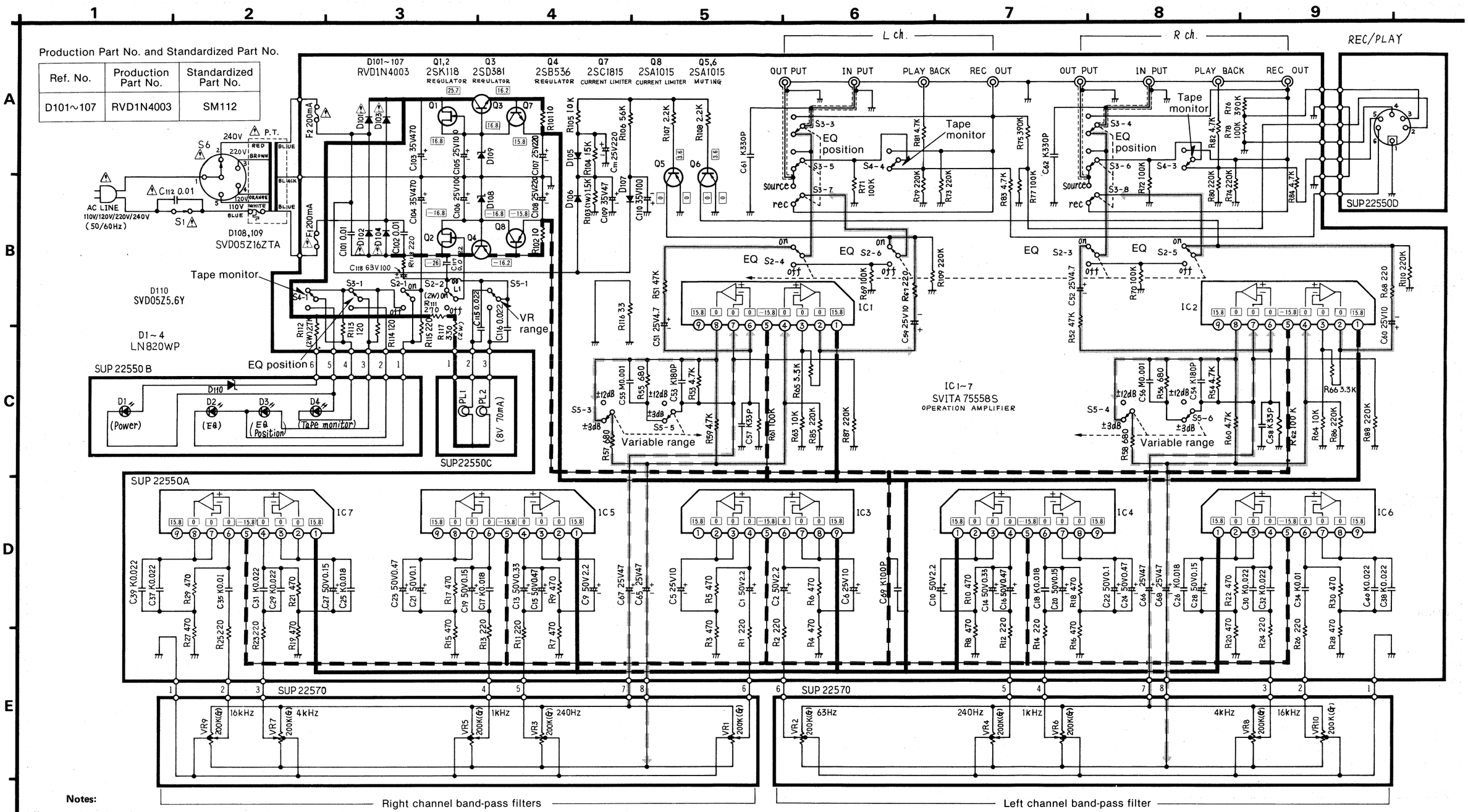


■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Production Part No. and Standardized Part No.

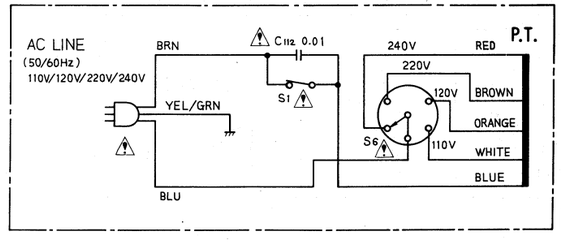
Ref. No.	Production Part No.	Standardized Part No.
D101~107	RVD1N4003	SM112



Notes:

1. **S1** : Power on/off switch in "**on**" position.
2. **S2-1** ~ **S2-6** : Equalizer on/off switch in "**on**" position
3. **S3-1** ~ **S3-8** : Equalizer position switch in "**rec out**" position (rec out/source)
4. **S4-1** ~ **S4-4** : Tape monitor switch in "**tape**" position. (tape/ source)
5. **S5-1** ~ **S5-6** : Variable range switch in "**± 3 dB**" position. (± 3 dB/± 12 dB)
6. **S6** : Voltage selector switch in "**240V**" position.
7. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   Standards values.
8. Signal lines (BPF)
9. ⊕ B, ⊖ B
10. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

• Power source circuit
Product for Australia [XL]

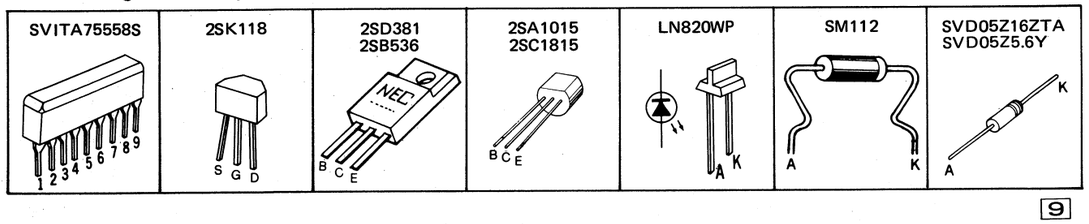


■ REPLACEMENT PARTS LIST (Electric Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC1 ~ 7		SVITA75558S	IC, Operation Amplifier
TRANSISTORS			
Q1, 2		2SK118	Transistor, Regulator [FET]
Q3		**2SD381–L**	Transistor, Regulator
Q4		**2SB536–L**	Transistor, Regulator
Q5, 6, 8		2SA1015–Y	Transistor, Muting & Current Limiter
Q7		2SC1815–Y	Transistor, Current Limiter
DIODES			
D1 ~ 4		LN820WP	Light Emitting Diode, Indicator
D101 ~ 107	⚠	**SM112**	Rectifier
D108, 109		SVD05Z16ZTA	Zener Diode, 16V
D110		SVD05Z5.6Y	Zener Diode, 5.6V
TRANSFORMER and COIL			
P.T	⚠	SLT5J103–W	Transformer, Power Source
L1		SLQX102–1Y	Choke Coil
FUSES			
F1, 2	⚠	XBA2C02SS0	Fuse, 200mA (250V)
VARIABLE RESISTORS			
VR1 ~ 10		EVAU01D20G25	Frequency Level Control, 200kΩ (G)
LAMPS			
PL1, 2		XAMR68S8	Lamp (8V, 70mA)
SWITCHES			
S1	⚠	ESB90619S	Switch, Power Source
S2 ~ 5		SSHY2	Switch, EQ, EQ Position, Tape Monitor, Variable Range
S6	⚠	ESE372	Switch, Voltage Adjuster
RESISTORS			
R1, 2		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R3, 4		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R5, 6		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R7, 8		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R9, 10		**ERD25TJ471**	Carbon, 1/4W, 470Ω, ± 5%
R11, 12		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R13, 14		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R15, 16		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R17, 18		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R19, 20		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R21, 22		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R23, 24		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R25, 26		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R27, 28		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R29, 30		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ± 5%
R51, 52		**ERD25TJ473**	Carbon, 1/4W, 47kΩ, ± 5%
R53, 54		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R55, 56		**ERD25FJ681**	Carbon, 1/4W, 680Ω, ± 5%
R57, 58		**ERD25FJ681**	Carbon, 1/4W, 680Ω, ± 5%
R59, 60		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R61, 62		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R63, 64		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ± 5%
R65, 66		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ± 5%
R67, 68		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R69, 70		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R71, 72		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R73, 74		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R75, 76		**ERD25TJ394**	Carbon, 1/4W, 390kΩ, ± 5%
R77, 78		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ± 5%
R79, 80		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R81, 82		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R83, 84		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ± 5%
R85, 86		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R87, 88		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R101, 102		**ERD25FJ100**	Carbon, 1/4W, 10Ω, ± 5%
R103		**ERG1ANJ152**	Metal Oxide, 1W, 1.5kΩ, ± 5%
R104		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ± 5%
R105		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ± 5%
R106		**ERD25TJ563**	Carbon, 1/4W, 56kΩ, ± 5%
R107, 108		**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ± 5%
R109, 110		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ± 5%
R111		**ERG2ANJ271**	Metal Oxide, 2W, 270Ω, ± 5%
R112		**ERG2ANJ272**	Metal Oxide, 2W, 2.7kΩ, ± 5%
R113, 114		**ERD25FJ121**	Carbon, 1/4W, 120Ω, ± 5%
R115		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
R116		**ERD25FJ330**	Carbon, 1/4W, 33Ω, ± 5%
R117		**ERG2ANJ331**	Metal Oxide, 2W, 330Ω, ± 5%
R118		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ± 5%
CAPACITORS			
C1, 2		**ECEA50Z2R2**	Electrolytic, 50V, 2.2μF
C5, 6		**ECEA1HS100**	Electrolytic, 50V, 10μF
C9, 10		**ECEA50Z2R2**	Electrolytic, 50V, 2.2μF
C13, 14		**ECEA50ZR33**	Electrolytic, 50V, 0.33μF
C15, 16		**ECEA50ZR47**	Electrolytic, 50V, 0.47μF
C17, 18		ECQM1H183KZ	Polyester, 50V, 0.018μF, ± 10%
C19, 20		**ECEA50ZR15**	Electrolytic, 50V, 0.15μF
C21, 22		**ECEA50ZR1**	Electrolytic, 50V, 0.1μF
C23, 24		**ECEA50ZR47**	Electrolytic, 50V, 0.47μF
C25, 26		ECQM1H183KZ	Polyester, 50V, 0.018μF, ± 10%
C27, 28		**ECEA50ZR15**	Electrolytic, 50V, 0.15μF
C29, 30		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C31, 32		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C34, 35		ECQM1H103KZ	Polyester, 50V, 0.01μF, ± 10%
C37, 38		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C39, 40		ECQM1H223KZ	Polyester, 50V, 0.022μF, ± 10%
C51, 52		**ECEA25Z4R7**	Electrolytic, 25V, 4.7μF
C53, 54		ECCD1H181K	Ceramic, 50V, 180pF, ± 10%
C55, 56		ECKD1H102MD	Ceramic, 50V, 0.001μF, ± 10%
C57, 58		ECCD1H330KC	Ceramic, 50V, 33pF, ± 10%
C59, 60		**ECEA1HS100**	Electrolytic, 50V, 10μF,
C61, 62		ECKD1H331KB	Ceramic, 50V, 330pF, ± 10%
C65, 66		**ECEA1ES470**	Electrolytic, 25V, 47μF
C67, 68		**ECEA1ES470**	Electrolytic, 25V, 47μF,
C69		ECCD1H101K	Ceramic, 50V, 100pF, ± 10%
C101, 102		ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80% −20%
C103, 104		**ECEA1VS471**	Electrolytic, 35V, 470μF
C105, 106		**ECEA1ES101**	Electrolytic, 25V, 100μF
C107, 108		**ECEA1ES221**	Electrolytic, 25V, 220μF
C109		**ECEA1HS470**	Electrolytic, 50V, 47μF
C110		**ECEA1VS101**	Electrolytic, 35V, 100μF
C111		**ECEA1ES221**	Electrolytic, 25V, 220μF
C112	⚠	ECKDKC103PF	Ceramic, 400VAC, 0.01μF, +100 0%
C115, 116		ECKD1H223ZF	Ceramic, 50V, 0.022μF, +80 −20%
C117		ECKD1H223ZF	Ceramic, 50V, 0.022μF, +80 −20%
C118		**ECEA1JS101**	Electrolytic, 63V, 100μF

• Terminal guide of IC, transistors and diodes



■ REPLACEMENT PARTS LIST (Cabinet and Chassis Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. [K] -marked parts are used for black only, while ○-marked parts are for silver type only.
4. Parts other than [K] - and ○-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Black type model No. SH-8015 (K)

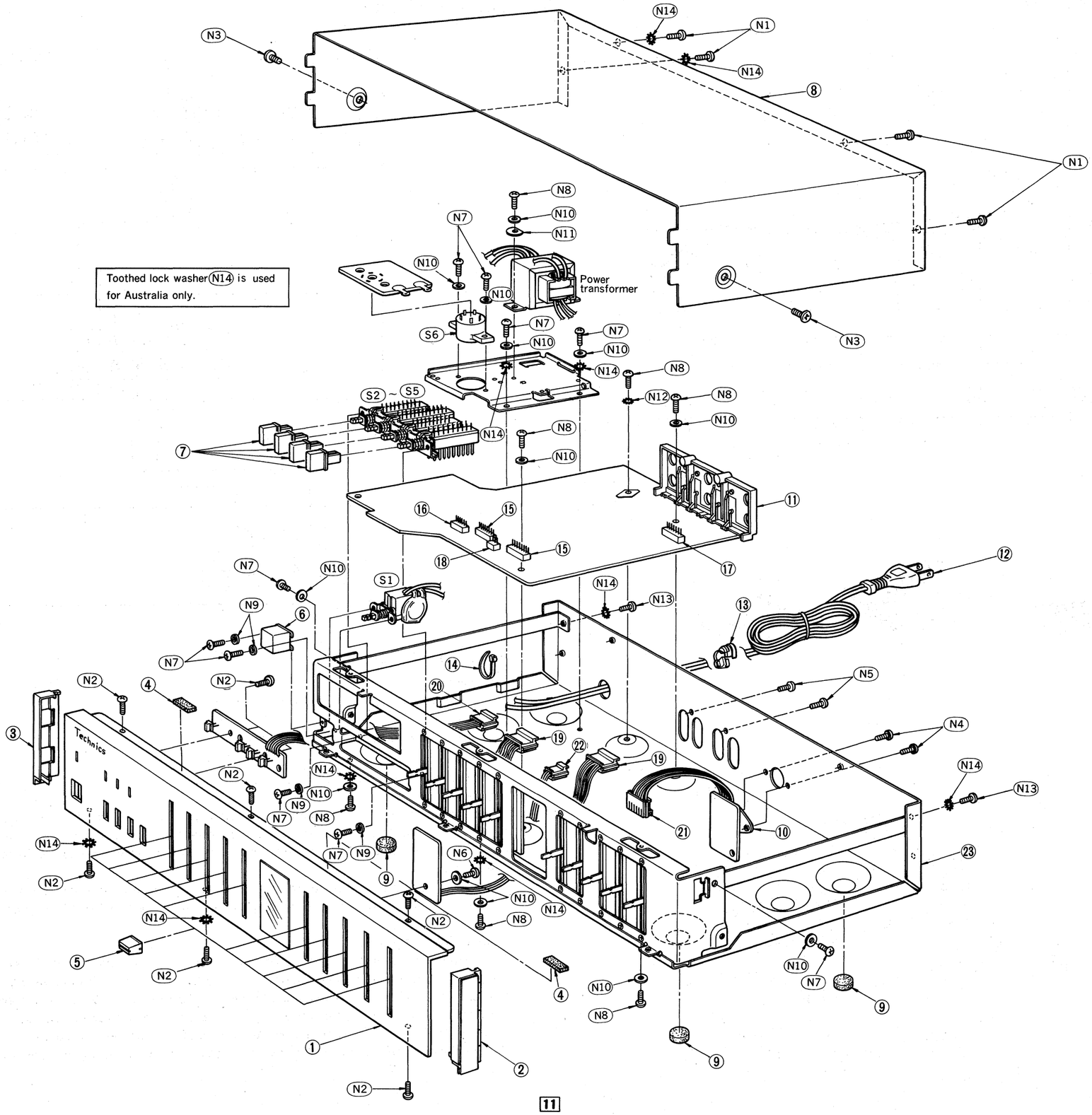
Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1	○	SGWH8015XA	Panel, Front Ass'y
1	[K]	SGWH8015KD	Panel, Front Ass'y (Black)
2	○	SGX7027–2	Ornament, Right Side
2	[K]	SGX7027–1	Ornament, Right Side (Black)
3	○	SGX7029–2	Ornament, Left Side
3	[K]	SGX7029–1	Ornament, Left Side (Black)
4		RHG675A	Rubber
5		SBDY4	Knob, Frequency Level Control
6		SBC307–1	Button, Power Switch
7		SBC339	Button, Push Switch
8	○	SKC750S	Cabinet
8	[K]	SKC750B	Cabinet (Black)
9		SKL245	Foot, Bottom
10		SJS6509	Socket, Rec/Play
11		SJF3049–1N	Terminal, Output, Input/Tape
12 [EK] only	⚠	**RJA45Z**	AC Cord
12 [X, XA] only	⚠	**RJA52Z**	AC Cord
12 [XL] only	⚠	QFC1207MA	AC Cord
12 [Other Areas]	⚠	**SJA88**	AC Cord
13 [XL] only		SHR131	Bushing, AC Cord
13 [EK] only		SHR129	Bushing, AC Cord
13 [Other Areas]		SHR127	Bushing, AC Cord
14		SHRY1	Cord Band
15		SJT3805	Plug (8 Pin)
16		SJT3607	Plug (6 Pin)
17		SJT3707	Plug (7 Pin)
18		SJT3311	Plug (3 Pin)
19		SWCY5–1	Lead (With 8 Pin Socket)
20		SWCY6	Lead (With 6 Pin Socket)
21		SWCY7	Lead (With 7 Pin Socket)
22		SWCY3	Lead (With 3 Pin Socket)
23 [X,XA] only		SGPY4A	Rear Panel
23 [XL] only		SGPY4–1A	Rear Panel
23 [E] only		SGPY4B	Rear Panel
23 [Other Areas]		SGPY4C	Rear Panel

Ref. No.		Part No.	Part Name & Description
SCREWS and WASHERS			
N1	○	**XTB3+6BFN**	Screw, Tapping, ⊕ 3 x 6 (Cabinet)
N1	[K]	**XTB3+6BFZ**	Screw, Tapping, ⊕ 3 x 6 (Cabinet), Black
N2	○	**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8 (Front Panel LED P.C.B.)
N2	[K]	**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8 (Front Panel LED P.C.B.), Black
N3	○	**XTB4+8BFN**	Screw, Tapping, ⊕ 4 x 8 (Cabinet)
N3	[K]	**XTB4+8BFZ**	Screw, Tapping, ⊕ 4 x 8 (Cabinet), Black
N4		**XYN3+C6FZ**	Screw, ⊕ 3 x 6 (Rec/Play Socket)
N5		**XTN3+10BFZ**	Screw, Tapping, ⊕ 3 x 10 (Terminal)
N6		**XTN3+8B**	Screw, Tapping, ⊕ 3 x 8 (Reflector P.C.B.)
N7		**XSN3+6S**	Screw, ⊕ 3 x 6 (Voltage Adjustor, Switch)
N8		**XSN3+8S**	Screw, ⊕ 3 x 8 (Transformer, P.C.B.)
N9		**XWA3B**	Washer, Spring, φ3
N10		**XWG3**	Washer, Plain, φ3
N11		**XNT3**	Washer, φ3
N12		**XWC3B**	Washer, Toothed Lock, φ3
N13		**XTB3+6BFZ**	Screw, Tapping, ⊕ 3 x 6 (Rear Panel)
N14 [XL] only		**XWC3B**	Washer, Toothed Lock, φ3
ACCESSORIES			
A1		SJP2129–5	Cord, Connection
A2 [X, XA] only	⚠	RJP120ZS	Plug Adaptor, AC Power
PACKING PARTS			
P1		SPP649	Polyethylene Bag
P2		SPSY11	Pad, Left Side
P3		SPSY12	Pad, Right Side
P4 [Other Areas]		SPGY20	Carton Box
P4 [EF] only		SPGY22	Carton Box
P4 [XL] only		SPGY23	Carton Box
P5 [XL] only		SPSY16	Pad
P6		SQXY50020	Instruction Book, Printed Matter

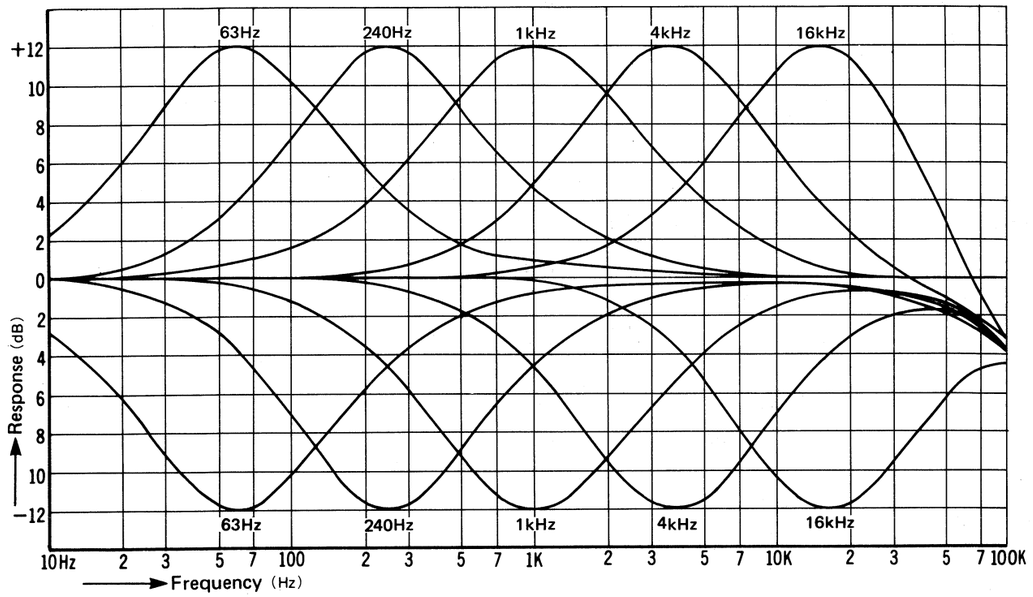
Areas

* [E] is available in Switzerland and Scandinavia.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [Ei] is available in Italy.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.

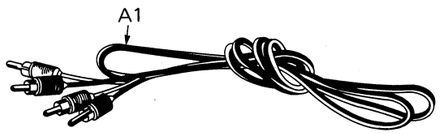
■ EXPLODED VIEW

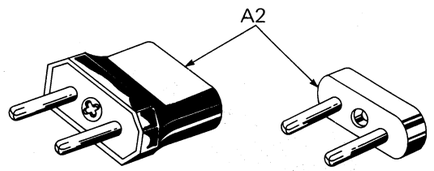


■ TOTAL FREQUENCY RESPONSE

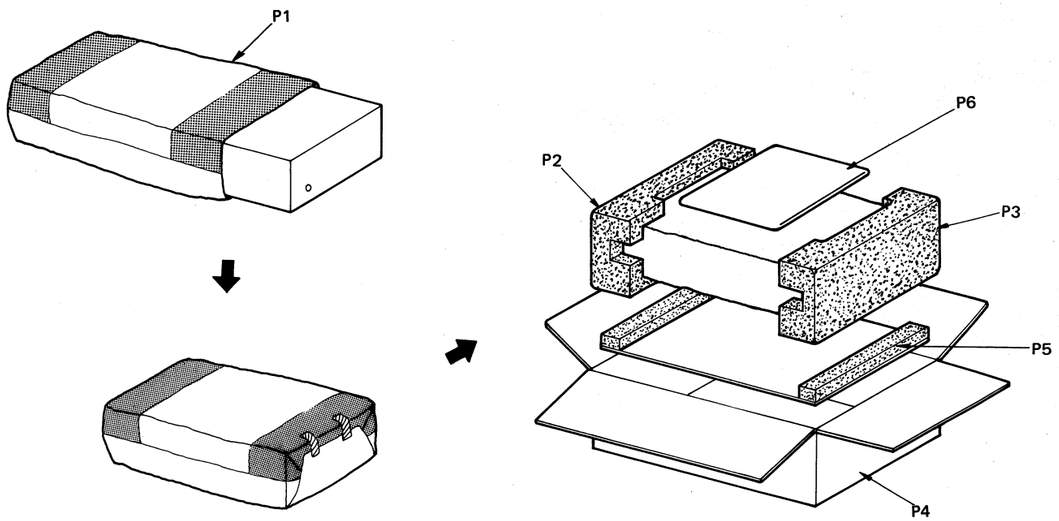


■ ACCESSORIES

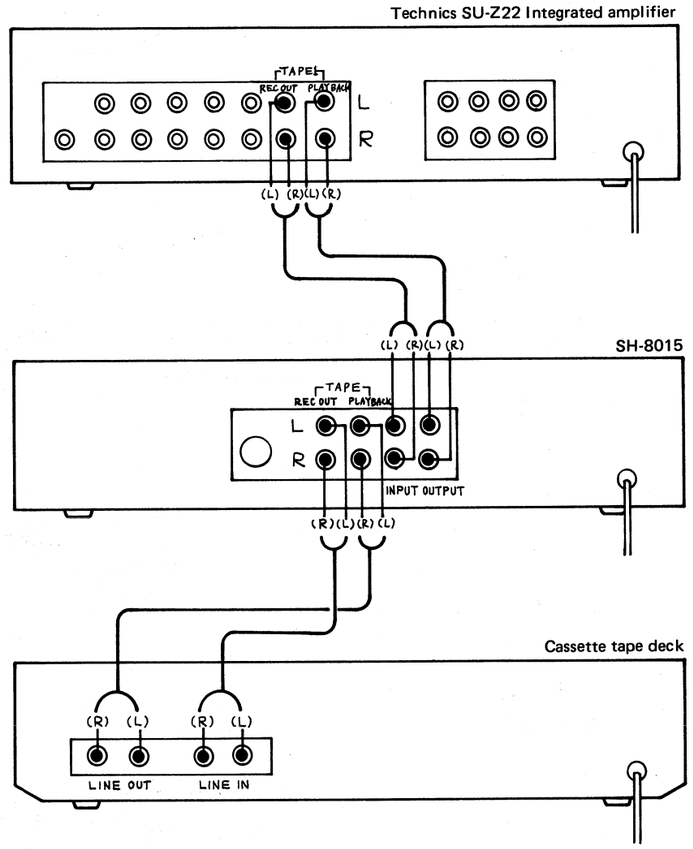




■ PACKINGS



■ CONNECTIONS



- **Tape-monitor selector**

▙ source:
Set to this position to listen to the radio or a disc.
▂ tape:
Set to this position to listen to a tape deck.

- **Equalization-position selector**

▙ source:
Set to this position in order to control the frequency response under the following conditions:
- When listening to the radio or a disc while the tape-monitor selector is set to the "source" (▂→▙) position.
- When listening to a tape deck while the tape-monitor selector is set to the "tape" (▙→▂) position.

▂ rec out:
Set to this position in order to make a tape recording of a radio broadcast or a disc while controlling the frequency response. Also, compensated playback sound can be heard at this position.

- **Equalization switch**

This switch can be used to turn the equalization circuitry on and off. If the switch is set to the "off" position (▂→▙), input signals are sent directly to the output terminals, without passing through the frequency-equalization circuitry. When this switch is set to the "off" position (▂→▙), the band-level controls can be set to any position without affecting the signals, and signals can be heard even if the power switch is in the "off" position. Set to the "on" position (▙→▂) for control of the frequency response.
The efficiency of this unit can be easily checked by alternately setting this switch to the "on" and "off" positions.

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